STATE OF VERMONT

PUBLIC SERVICE BOARD

Request for Proposal and Comment for)

Implementing temporary sound-level) June 27, 2016

Standards for wind generation projects)

Dear Public Service Board,

This comment on the creation of temporary rules for turbine noise focuses on noise limits in CPG's for existing wind projects, which, in compliance with S-260, cannot be exceeded in the temporary rules.

At the heart of this comment is the incompatibility of a 45 dBA outside - 30 dBA interior limit. In order to comply with the 30 dBA interior limit, the 45 dBA outside limit must be reduced to 31 dBA. Uncontested evidence for this is contained in Docket 8653, 624219-VPSD-Sheffield-BrouhaResidence092515c.docx, which is a report prepared by Acentech at the request of the PSB.

Acentech's analysis of the Outdoor/Indoor Level Reduction (OILR) found the following conditions:

"The OILR values that we determined for distant wind turbine sound are:

- *Windows fully closed – 25 dBA*
- *Windows partially open – 6 dBA*
- ***Windows fully open – 1 dBA*** (emphasis added)

We obtained similar OILR values with additional measurements at different locations in the bedroom. Average data measured around the bedroom yielded the following OILR values:

- *Windows fully closed – 25 dBA*
- *Windows partially open – 9 dBA*
- *Windows fully open – 3 dBA*

The OILR values of 1 to 3 dBA for fully open windows are consistent with NPC's test result for the same Brouha bedroom and the OILR value of 25 dBA for fully closed windows is similar to HA's test result for the King George School dorm facade. An OILR value necessarily depends on the spectrum of a sound source (e.g., nearby highway traffic, distant wind turbine, or local lawnmower). This fact is noted in the introduction of ASTM Standard Guide E966-04: Aaron Kisicki Sheffield Wind Noise Complaint 25 September 2015 Page 6 of 13 "The sound transmission of a building facade or facade element as measured under field

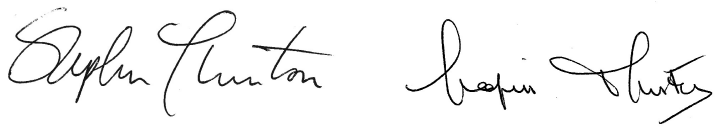
*conditions is dependent not only on the physical characteristics of the facade, but also on the characteristics of the incident sound field used to make the measurement." If we did not normalize the our (*sic*) test results to a distant wind turbine sound spectrum, they would still yield OILR values of 1 to 3 dBA and 6 to 9 dBA for, respectively, windows fully open and windows partially open conditions, but they would yield an OILR value of 32 dBA rather than the above 25 dBA for the windows fully closed condition."* (emphasis added)

Acentech's analysis of the Brouha residence concluded that*, "For the indoor locations in the second floor west bedroom of the Brouha residence (center of room and around the room), the estimated project-only sound did not exceed 30 dBA with the windows fully closed during any survey, but did exceed 30 dBA with the windows partially or fully open during most of the other surveys. During the summer, a time when windows are most likely to be open, the percentage of time exceeding 30 dBA ranged from 0% (windows partially open) to less than 1% (windows fully open). During the winter, when windows are more likely to be closed, the percentage of time exceeding 30 dBA ranged from less than 6 to 8% (windows partially open) to about 10 to 12% (windows fully open). And during the shoulder seasons of spring and fall, when windows are likely to be open at times, the percentage of time exceeding 30 dBA ranged from about 2 to 6% (windows partially open) and about 10 to 14% (windows fully open)."* (emphasis added)

A 30 dBA interior limit, which is wisely used by the PSB in conformance with WHO recommendations, includes those times that windows will be open during some part of the year. As Acentech's report shows, when windows are partially or wide open the reduction in sound level from outside to inside is 1-9 dBA. In order for the 30 dBA limit to be in compliance at all times, which is what the law requires, turbine sound levels outside cannot be more than 1 decibel higher than 30 dBA. Adding 1 decibel to 30 dBA accurately indicates the allowable outside sound level for windows wide open. 31 dBA is the outside level that must be contained in the temporary rules for wind turbines to be in compliance with the 30 dBA limit at all times.

Establishing a temporary rule higher than 31 dBA outside is unsupportable.

By:



Stephen Thurston and Monique Thurston
89 Diamond Island Lane
Ferrisburgh, VT 05456
802 877 3431
Thurston.steve@gmail.com
Thurston.monique@gmail.com